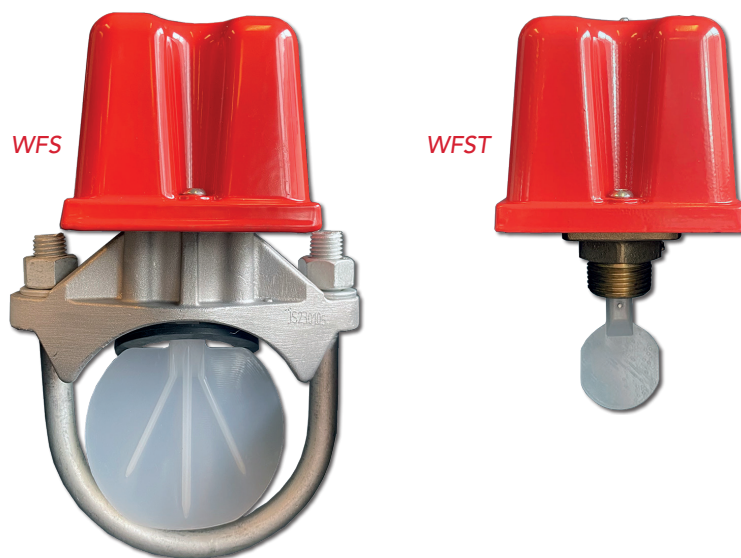


Size range WFS: 2" - 8"

Size range WFST: 1" - 2"



The Profit waterflow switches, type WFS & WFST are used for the detection of a water flow in fire sprinkler piping systems. The switch can be applied in the full range pipes schedule 10 through 40.

Characteristics

- Only suitable for wet systems on pipes sched 10 to sched 40.
- All parts have corrosion resistant finishes.
- Indoor and outdoor use.
- Two conduit entrances.
- Both models WFS and WFST have two synchronised switches (SPDT contacts model).
- Tamper resistant cover screws (tool included).
- Protection class: IP55.

Working temperature

0°C to 49°C

Working pressure

- UL/FM: 450 PSI
- CE: 16 bar

Flow sensitivity

- UL/FM: 15 – 37 l/min (4-10GPM)
- CE: 30 - 54 l/min

Contact ratings

8A at 125/250VAC; 3A at 24VDC; 2,5A at 30VDC

Maximum flowrate

5,5 m/sec

General description

Water flow in the pipe deflects a vane, which will trigger a switch when the flow rate exceeds 37,8 l/min, after a specified delay period. The delay is controlled by an adjustable mechanical delay mechanism.

Material specifications

- Aluminum die cast cover, red painted.
- Aluminum die cast base.
- Saddle: WFS: Aluminum
WFST: Bronze
- A set of 2 SPDT switches with the following contact ratings:
 - 10 Amps at 125/250 VA
 - 2.5 Amps at 30VDC

Installation instructions (also included in the packaging)

1. WFS

NOTE: Do not leave cover off for an extended period of time.

1. These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they shall be installed on the top side of the pipe where they will be accessible. Be sure there is adequate clearance for installation and removal. See Fig.1 for mounting dimensions.
2. The device should not be installed within 15cm of a fitting which change the direction of the water flow or within 60cm of a valve or drain.
3. Drain the system and drill a hole in the pipe. And be sure the hole is perpendicular to the center of the pipe, as show in Fig.2. If the hole is off center, the vane will bind against the inside wall of the pipe. Use a hole saw in a slow speed drill to cut a hole of the proper diameter, as show in Table 2.
4. Remove burrs and sharp edges from the hole. Clean and remove all scale and foreign matter from the inside of the pipe for a distance equal to the pipe diameter on either side of the hole. Clean the outside of the pipe to remove dirt, metal chips, and cutting lubricant.
5. Roll the vane so that it may be inserted into the hole; do not bend or crease it. Seat the gasket against the saddle and mount the detector into the pipe. Insert the vane so that the arrow on the saddle points in the direction of the water flow. The bushing should fit inside the hole in the pipe.
6. Install the U-bolt and tighten nuts alternately to ensure a uniform seal (see Table 2 for torque values).

Fig.1 Mounting dimensions

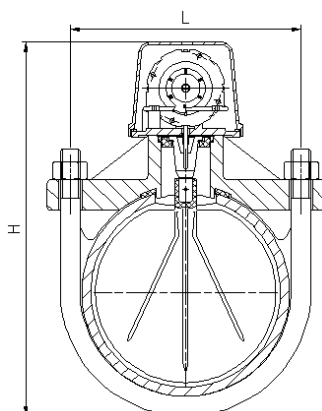
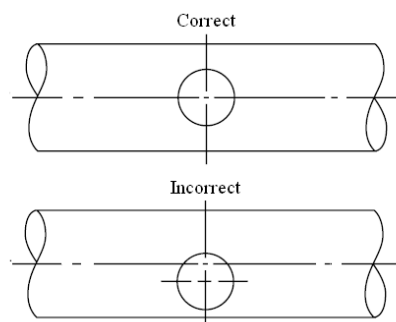


Fig.2 Mounting hole location



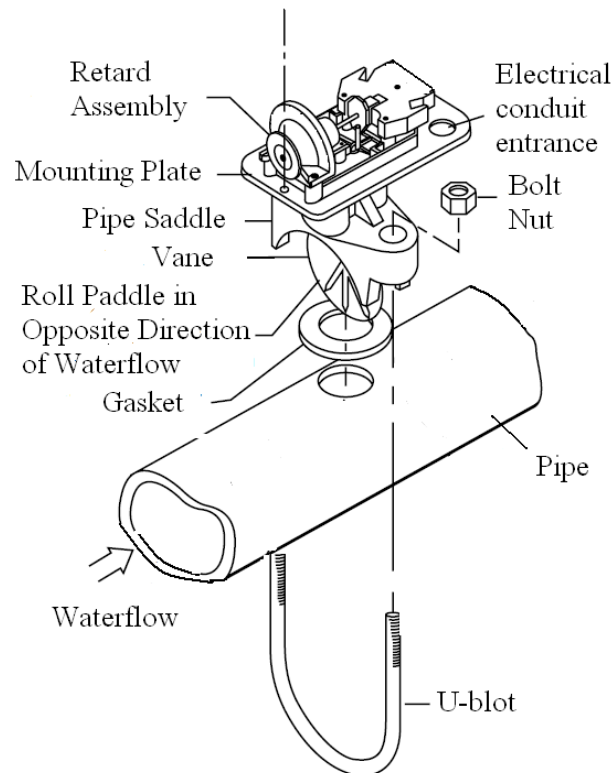
7. The vane must not rub the inside of the pipe or bind in any way. If the vane binds, remove the detector and correct the cause before proceeding.
 8. Ensure that the direction of arrow on the saddle point should be consistent with the direction of the water flow. See Fig.3.
- Notes: Remove burrs from edge of hole. Clean out scale and foreign matter from inside wall of pipe.**

Table 2 Main dimensions

Nominal Pipe Size		Nominal Pipe Size OD.		Pipe wall thickness				L	H	Hole cut size	U-bolt Nuts torque
				Schedule10		Schedule40					
mm	in	mm	in	mm	in	mm	in	mm	mm		
DN50	2	60.3	2.375	2.77	0.109	3.91	0.154	84	188	32+1	40-50
DN65	2.5	73.0	2.875	3.05	0.12	5.16	0.203	92	200	51+1	70-95
DN80	3	88.9	3.500	3.05	0.12	5.49	0.216	104	220		
DN100	4	114.3	4.500	3.05	1.12	6.02	0.237	133	245		
DN125	5	141.3	5.563	3.40	0.134	6.55	0.258	160	272		
DN150	6	168.3	6.625	3.40	0.134	7.11	0.280	187	298		
DN200	8	219.1	8.625	3.76	0.148	8.18	0.322	240	350		

(This torque is only for normal use. The type test torque is recommended to be appropriately increased).

Fig.3 Assembly diagram



Installation instructions (also included in the packaging)

2. WFST

NOTE: Do not leave cover off for an extended period of time.

1. These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they shall be installed on the top side of the pipe where they will be accessible. Be sure there is adequate clearance for installation and removal. See Fig.4 for mounting dimensions.
2. The device should not be installed within 15cm of a fitting which change the direction of the water flow or within 60cm of a valve or drain.
3. Thread water flow detectors are designed to fit only the appropriate tee fitting as shown in Fig.5.
Carefully roll the vane opposite the direction of flow and screw the device into the TEE fitting. Care must be taken to properly orient the device for the direction of water flow.
4. The vane must not rub the inside of the TEE or bind in any way. The stem should move freely when operated by hand.

Fig.4 Mounting dimensions

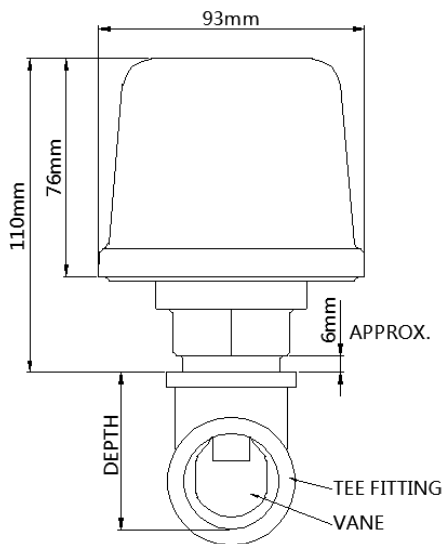
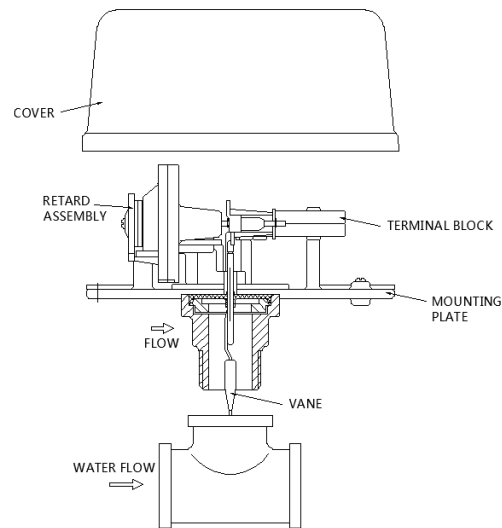


Fig.5 Assembly diagram



5. If the vane binds, remove the detector and correct the cause before proceeding.
 6. Ensure that the direction of arrow on saddle should be consistent with the direction of the water flow.
- Notes: The depth to the inside bottom of the tee should have the following dimensions in Table 3.**

Table 3 Tee fitting depth

Approximate Depth Requirement	
Tee Size	Threaded/mm
1" x 1" x 1"	54
1 1/4" x 1 1/4" x 1"	62.5
1 1/2" x 1 1/2" x 1"	69
2" x 2" x 1"	82

Wiring

WFS & WFST

1. All model have two SPDT switches, one can be used to operate a central station, while the other contact is used to operate a local audible or visual annunciator. Switch contacts COM and NO are closed when water is flowing and open when it is not. Connect the switches, as shown in Fig.6, depending on the application. The electrical contact resistance shall not exceed 0.2Ω. And the insulation resistance shall not less than 20MΩ.
2. A ground screw is provided with all water flow detectors. See Fig.7. When grounding is required, clamp wire with screw in hole located between conduit entrance holes.
3. If a second conduit entry is required, remove the knockout plug: Place screwdriver at inside edge of knockouts, not in the center.

Fig.6 Typical electrical connections

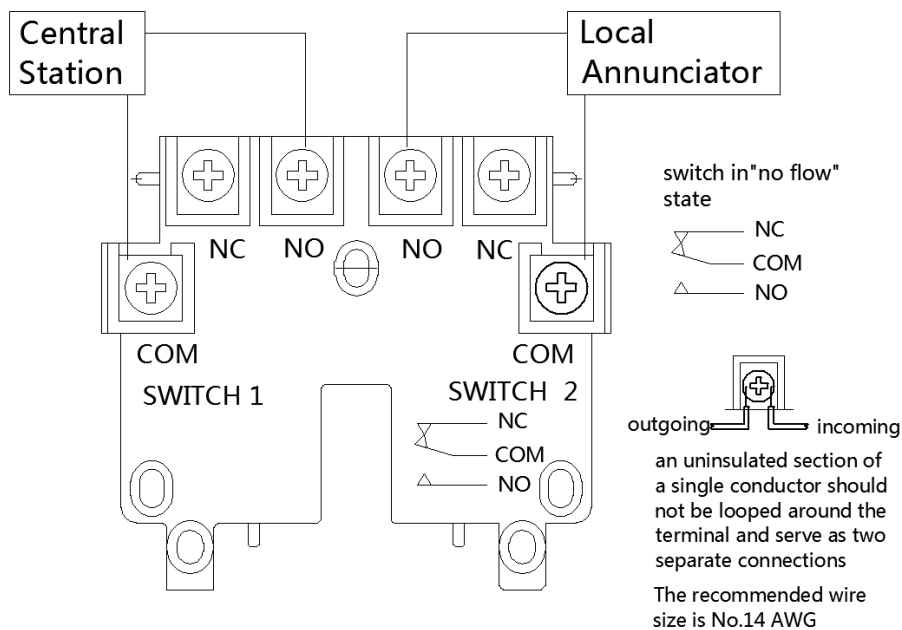
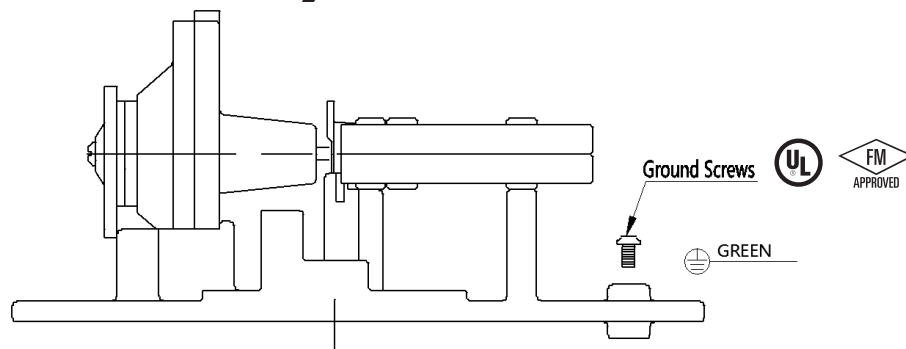


Fig.7 Ground screw



Retard adjustment

WFS & WFST

The delay can be adjusted by rotating the retard adjustment knob from 0 to max setting. To adjust the setting, turn the adjustment knob clockwise to increase the delay, counterclockwise to decrease it. The time delay should be set at the minimum required to prevent false alarms.